

## 5 OTHER CEQA-REQUIRED SECTIONS

### 5.1 CUMULATIVE IMPACTS

#### 5.1.1 INTRODUCTION

This DEIR provides an analysis of cumulative impacts of the SERP taken together with other past, present, and probable future projects producing related impacts, as required by the CEQA Guidelines (14 California Code of Regulations [CCR] section 15130). The goal of such an exercise is twofold: first, to determine whether the overall long-term impacts of all such projects would be cumulatively significant and, second, to determine whether the SERP would result in a “cumulatively considerable” (and thus significant) *incremental* contribution to any such cumulatively significant impacts. (See the CEQA Guidelines [CCR sections 15064(h), 15065(c), 15130(a), 15130(b), and 15355(b)].) In other words, the required analysis first creates a broad context in which to assess the project’s incremental contribution to anticipated cumulative impacts, viewed on a geographic scale beyond the Phase 1 SERP coverage area. The analysis then determines whether the project’s incremental contribution to any significant cumulative impacts from all projects is itself significant (i.e., “cumulatively considerable” in CEQA parlance).

Cumulative impacts are defined in the CEQA Guidelines (CCR section 15355) as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” A cumulative impact occurs from “the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time” (CCR section 15355[b]).

Consistent with the CEQA Guidelines (CCR section 15130[a]), the discussion of cumulative impacts in this DEIR focuses on significant and potentially significant cumulative impacts. The CEQA Guidelines (CCR section 15130[b]) state that:

The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

The CEQA Guidelines identify two basic methods for establishing the cumulative environment in which the project is to be considered: the use of a list of past, present, and probable future

projects (the “list approach”) or the use of adopted projections from a general plan, other regional planning document, or certified EIR for such a planning document that is designed to evaluate regional or area-wide conditions (the “plan approach”).

Because the SERP consists of a unified approach to environmental permitting and review of erosion repairs within the Sacramento River Flood Control Project (SRFCP) area, the plan approach is used to allow a cumulative analysis on this regional scale. This EIR provides program-level analysis of potential impacts associated with the SERP under CEQA. The work proposed under Phase 1 crosses six California counties (Sacramento, Yolo, Solano, Sutter, Colusa, and Butte). Each county has adopted a general plan that identifies goals and policies intended to guide decisions on future growth, development, and conservation of resources. Within the counties, local municipalities also influence various aspects of land use through their own general plans and local codes.

The issue areas identified by the SERP NOP in Appendix A as having no impact would not result in cumulatively considerable incremental contributions to significant cumulative impacts because there would be no impact and, therefore, no incremental contribution. Therefore, those issue areas identified as having no impact at the project-level (i.e., agricultural resources, land use and planning, mineral resources, population and housing, public services) are not discussed further in the cumulative impact discussion below. Although it was determined that issue areas identified in Appendix A as having less-than-significant impacts did not need to be addressed at a project-level in this DEIR, those issue areas have the potential to make a cumulatively considerable incremental contribution to a cumulatively significant impact. Because cumulative impacts were not addressed in Appendix A, these issue areas are addressed below as part of the cumulative discussion.

### **5.1.2 CUMULATIVE CONTEXT**

Sacramento, Yolo, Solano, Sutter, Colusa, and Butte counties and the cities within these counties as a whole are facing numerous regional issues pertaining to air quality degradation, traffic generation, habitat loss, water quality degradation, and other urban-related environmental changes. The Central Valley Flood Protection Plan (CVFPP) is also an important regional document for the State Plan of Flood Control (SPFC). This section provides the context upon which cumulative impacts can be evaluated.

#### **SACRAMENTO COUNTY**

Sacramento County encompasses approximately 994 square miles in the middle of the 400-mile-long Central Valley, which is California’s prime agricultural region. The county is bordered by Contra Costa and San Joaquin counties to the south, Amador and El Dorado counties to the east, Placer and Sutter counties to the north, and Yolo and Solano counties to the west. Sacramento County extends from the low Sacramento–San Joaquin Delta (Delta) lands

between the Sacramento and San Joaquin rivers north to about 10 miles beyond the California Capitol and east to the foothills of the Sierra Nevada. Sacramento County lies at the geographic center of the region and spans both agricultural land uses as well as the most urbanized areas of the region. The geographic boundaries of Sacramento County include seven incorporated cities: Citrus Heights, Elk Grove, Folsom, Galt, Isleton, Rancho Cordova, and Sacramento (Sacramento County 2009). The county has grown from 1,041,219 in 1990 to 1,223,499 in 2000, and the population of the county as of January 1, 2009, was estimated to be 1,433,187 (DOF 2009).

## **YOLO COUNTY**

Yolo County encompasses approximately 1,000 square miles, of which 960 square miles are located in the unincorporated county. The county is bordered by Solano County to the south, Sacramento County to the east, Colusa County to the north, and Napa County to the west. Yolo County as a whole is generally rural with over 96 percent of the county area designated for agricultural and open space uses. Four incorporated cities are located in Yolo County: Davis, West Sacramento, Winters, and Woodland (Yolo County 2009).

The county has grown from 141,210 in 1990 to 168,660 in 2000, and the population of the county as of July 1, 2011, was estimated to be 201,645 (DOF 2012).

## **SOLANO COUNTY**

Solano County encompasses about 900 square miles, including about 75 square miles of water. The county is bordered by Contra Costa County to the south, Yolo and Sacramento counties to the east and northeast, Yolo County to the north, Marin County to the southwest, and Napa and Sonoma counties to the west. Approximately 77,500 acres of the county consist of the incorporated cities of Benicia, Dixon, Fairfield, Rio Vista, Suisun City, Vacaville, and Vallejo (Solano County 2008).

The unincorporated area of the county has been rural since the county was established, with most land in use for either agricultural purposes (crop cultivation and grazing) or natural resources. Rural residential development has occurred in other locations throughout the county.

The county has grown from 339,471 people in 1990 to 378,930 people in 2000. The population of the county as of July 1, 2011, was estimated to be 413,635 persons (DOF 2012).

## **SUTTER COUNTY**

Sutter County is situated in the Sacramento Valley, with the southern boundary located approximately 10 miles north of the city of Sacramento. The county comprises 607 square miles of land and is generally bordered by the Sacramento River to the west, the Feather and

Bear rivers and Placer County to the east, Butte County to the north, and Sacramento County to the south (Sutter County 2008).

The unincorporated area of the county consists of several rural communities including Meridian, Sutter, Robbins, and the communities of Rio Oso, Trowbridge, Nicolaus, and East Nicolaus, all clustered near the convergence of the Bear and Feather rivers in the southeast portion of the county (Sutter County 2008). In addition to the rural communities, Sutter County includes two incorporated cities: Yuba City and Live Oak.

Although residential uses are clustered in the cities and rural communities, approximately 8,800 acres of residential uses are scattered throughout the remainder of the county. Most of these residential uses are located in unincorporated areas surrounding Yuba City and Live Oak and outside of the boundaries of the rural communities. Other clusters of residential land use occur along major transportation corridors, such as State Route (SR) 99 and SR 20, as well as along the Sacramento and Feather rivers and surrounding the Sutter Buttes. Other smaller concentrations of industrial and public areas are also located throughout the unincorporated county (Sutter County 2008).

The county has grown from 64,415 people in 1990 to 78,930 people in 2000. The population of the county as of July 1, 2011, was estimated to be 96,351 persons (DOF 2012).

## **COLUSA COUNTY**

Colusa County comprises 1,156 square miles of land. The county is bordered to the west by Lake County, to the east by Sutter County and the Sacramento River, to the north by Glenn County, to the northeast by Butte County, and to the south by Yolo County. The County consists of the incorporated cities of Colusa and Williams and the unincorporated communities of Arbuckle, Century Ranch/Lodoga, College City, Grand Island/Grimes, Leesville, Maxwell, Princeton, Sites, and Stonyford (Colusa County 2012). The county has grown from 16,275 people in 1990 to 18,804 people in 2000. The population of the county as of July 1, 2011, was estimated to be 21,564 persons (DOF 2012).

## **BUTTE COUNTY**

Butte County is located in the northeastern part of the Sacramento Valley and extends into the northern Sierra Nevada foothills and mountains that rise to the east of the Valley floor. The county comprises approximately 1,680 square miles and can be divided into three general topographical areas: a valley area, a foothill region east of the valley area, and a mountain region east of the foothills. Butte County is bounded to the west by Glenn and Colusa counties, with the Sacramento River and Butte Creek forming portions of the western boundary. To the north and northwest, the county adjoins Tehama County; to the east, Plumas County; and to

the south and southeast, Sutter and Yuba counties. The South Fork of Honcut Creek forms the southeast boundary with Yuba County (Butte County 2009).

Butte County is predominantly rural. With the exception of Paradise and the Magalia/Upper Ridge areas, the county's largest urban areas are located in the western part of the county. Urban development in Butte County has been concentrated in the areas formed by the county's five incorporated communities: Biggs, Chico, Gridley, Oroville, and Paradise. More recent development activity has taken place on the periphery of these established communities (Butte County 2007).

The county has grown from 182,120 people in 1990 to 203,171 people in 2000. The population of the county as of July 1, 2011, was estimated to be 220,570 persons (DOF 2012).

## **CENTRAL VALLEY FLOOD PROTECTION PLAN**

The CVFPP is a critical document to guide California's participation (and influence federal and local participation) in managing flood risk along the Sacramento River and San Joaquin River systems. The CVFPP proposes a systemwide investment approach for sustainable, integrated flood management in areas currently protected by facilities of the SPFC. The State conducted planning and investigations for the 2012 CVFPP from 2009 through 2011, representing the most comprehensive flood evaluations for the Central Valley. The Central Valley flood management system includes levees along the major rivers and streams of the valley floor and around the islands of the Delta, a major bypass system for the Sacramento River and its tributaries, several bypass segments along the San Joaquin River, and reservoirs on almost all major rivers and streams draining to the Central Valley. The regional and system improvements considered in the CVFPP are intended to address a number of potential physical threats to the existing flood management system. These threats are described in the Flood Control System Status Report (DWR 2011). For levees in the system, threats include problems associated with geometry, seepage, structural instability, erosion, settlement, penetrations, vegetation, rodent damage, and encroachments.

### **5.1.3 GEOGRAPHIC SCOPE**

The geographic area that could be affected by the Phase 1 SERP varies depending on the type of environmental resource being considered. The Phase 1 SERP represents approximately 300 miles of levees and includes six counties (see Exhibit 2-1 of Chapter 2, "Project Description," for the Phase 1 SERP coverage area). A maximum of 15 individual erosion repair projects would be implemented annually during the Phase 1 SERP, for a total of up to 75 projects over 5 years. The individual erosion repairs would be defined generally as the footprint of new materials to protect a levee bank and the additional vegetated area that would be disturbed by equipment during construction. The combined total area, if all projects under

the SERP were Tier 2 (0.5 acre), would be 37.5 acres spread throughout the 300 miles of levees in the SRFCP.

When the effects of the SERP are considered in combination with those other past, present, and probable future projects to identify cumulative impacts, the other projects considered may also vary depending on the type of environmental effects being assessed. The general geographic area associated with different environmental effects of the SERP defines the boundaries of the area considered in the cumulative impact analysis. Table 5-1 presents the general geographic areas associated with the different resources addressed in this DEIR analysis.

<b>Table 5-1</b> <b>Geographic Scope of Cumulative Impacts</b>	
<b>Resource Issue</b>	<b>Geographic Area</b>
Air Quality and Climate Change	Sacramento Valley Air Basin for air quality and global, regional, and local (individual repair project sites and vicinity) for climate change
Biological Resources	Individual repair sites and SERP coverage area
Cultural Resources	Individual repair sites and SERP coverage area
Geology, Soils, and Paleontological Resources	Individual repair sites and SERP coverage area
Hydrology and Water Quality	Individual repair sites, Lower Sacramento River reach and tributaries, and SERP coverage area
Noise	Individual repair sites and SERP coverage area
Note: SERP = Small Erosion Repair Program. Source: Data provided by AECOM in 2010	

#### 5.1.4 LIST OF RELATED PROJECTS IN THE PHASE 1 SERP COVERAGE AREA

In addition to the statewide, regional, and local plans and statewide development data identified in the previous section, reasonably foreseeable future projects are included in this cumulative impacts analysis. These projects were considered individually because their effects are more closely related to those of the SERP than other projects.

Each future project considered for this cumulative impacts analysis could have an effect on a portion of the physical environment that also could be affected by the SERP (i.e., the project may interact with the SERP on a cumulative basis). A list of potential reasonably foreseeable future projects was developed using available information regarding planned projects (including agency Web sites).

Potential reasonably foreseeable future projects were evaluated for inclusion in the cumulative effects analysis based on three criteria. To be considered reasonably foreseeable and included in the cumulative impact analysis, the future project must generally meet all of the following criteria:

1. The project would have an effect on a portion of the physical environment that also could be affected by the SERP (i.e., interact on a cumulative basis with the SERP).
2. Sufficiently detailed information about the project is available to allow meaningful analysis without undue speculation.
3. The project is actively under development (i.e., an identified sponsor is actively pursuing project development or construction); initial CEQA and/or National Environmental Policy Act (NEPA) compliance documents, such as a draft EIR or environmental impact statement, have been completed or substantial progress has been made toward completion; and the project is “reasonably foreseeable” given other considerations, such as site suitability, funding and economic viability, and regulatory limitations.
4. The project would not be considered to be part of the SERP if the SERP were adopted.

Only projects meeting all four of the criteria described above were included in the analysis of cumulative impacts as reasonably foreseeable projects. The following projects have been considered:

- ▶ CVFPP
- ▶ DWR/U.S. Army Corps of Engineers (USACE) Repairs to Critical Erosion Sites (repairs to more than 100 of the most critical sites [of 250 total] have been completed);
- ▶ DWR Urban and Nonurban Levee Evaluation Programs (although this data collection program results in only inconsequential effects from levee borings);
- ▶ The Sacramento Area Flood Control Agency’s (SAFCA’s) Natomas Levee Improvement Program (NLIP), which is under construction through at least 2014 and includes the following:
  - NLIP Natomas Cross Canal South Levee Phase 1 Improvements (Phase 1 Project),
  - Post-2010 NLIP Seepage Remediation projects,
  - NLIP Bank Protection Project/Erosion Control projects,
  - Phase 2 Project,

- Phase 3 Project (includes Phases 3a and 3b),
  - Phase 4a and 4b Projects, and
  - SAFCA Levee Integrity Program (specific construction activities are not yet planned, designed, or funded, and their timing is not known);
- ▶ Flood damage reduction projects requiring permission from USACE pursuant to section 14 of the Rivers and Harbors Act of 1899 (33 United States Code [USC] 408, referred to as “section 408,” for alteration of federal project levees. See Table 5-2, which identifies projects in the Sacramento River system that are within the Phase 1 SERP coverage area where USACE has completed section 408 authorizations, is currently processing requests for section 408 authorizations, or expects to receive requests for section 408 authorizations in the near future. Because the repairs implemented under the SERP would be considered maintenance, they would not require section 408 authorizations; however, the geographic area and environmental impacts of the section 408 projects listed below could overlap with projects under the SERP;
  - ▶ Yuba River Basin Project;
  - ▶ North of Delta Off-Stream Storage (Sites Reservoir);
  - ▶ Shasta Lake Water Resources Investigation
  - ▶ North Bay Aqueduct Alternative Intake Project; and
  - ▶ Bay Delta Conservation Plan/Delta Habitat Conservation and Conveyance Plan/Delta Plan.

### **5.1.5 ANALYSIS OF CUMULATIVE IMPACTS**

The following sections discuss the cumulative effects anticipated from implementation of the SERP, together with the reasonably foreseeable similar projects above and general regional development in Sacramento, Yolo, Solano, Sutter, Colusa, and Butte counties, for each of the six environmental issue areas evaluated in this DEIR, as well as all other environmental issue areas identified as less than significant in the Initial Study (Appendix A). The analysis conforms with section 15130 of the CEQA Guidelines, which specifies that the “discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great a detail as is provided of the effects attributable to the project alone.”



<b>Table 5-2 Section 408 Projects</b>			
<b>Flood Damage Reduction Project or System</b>	<b>Project Title</b>	<b>Lead Agency/Agencies</b>	<b>Status of Section 408 Request</b>
<b>Approved Section 408 Projects</b>			
Sacramento River Flood Control Project	Feather River Segment 1 and 3 Improvements	Three Rivers Levee Improvement Authority	Approved
Sacramento River Flood Control Project	Feather River Segment 2 Improvements	Three Rivers Levee Improvement Authority	Approved
Sacramento River Flood Control Project	Natomas Cross Canal and Sacramento River modifications— Phase 2 Project	SAFCA	Approved
Sacramento River Flood Control Project	Feather River Levee Setback at Star Bend	Levee District 1 of Sutter County	Approved
Sacramento River Flood Control Project	Natomas Levee Improvement Program— Phase 3 Project	SAFCA	Approved
<b>Ongoing Section 408 Projects</b>			
Sacramento River Flood Control Project	Natomas Levee Improvement Program—Phase 4a Project	SAFCA	Approved
Sacramento River Flood Control Project	Natomas Levee Improvement Program—Phase 4b Project	SAFCA	Decision anticipated 2013
Sacramento River Flood Control Project	River Islands Project	Califia, LLC	Approved
Sacramento River Flood Control Project	2010 Improvements	West Sacramento Flood Control Agency	Approved
Sacramento River Flood Control Project	2011 Improvements	West Sacramento Flood Control Agency	Approved
<b>Anticipated Future Section 408 Projects</b>			
Sacramento River Flood Control Project	Bay Delta Conservation Plan	California Department of Water Resources	Decision anticipated 2014
Source: Compiled by AECOM in 2011			

## AIR QUALITY

The Phase 1 SERP coverage area is located in the Sacramento Valley Air Basin (SVAB). The SVAB comprises all of Butte, Colusa, Glenn, Western Placer, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba counties and the eastern portion of Solano County. Past development in the SVAB combined with meteorological conditions has clearly resulted in significant cumulative impacts to air quality. As described in Section 3.2, “Air Quality and Climate Change,” the SVAB is in nonattainment status for ozone and respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM<sub>10</sub>).

The SERP is overseen by five air districts: Butte County Air Quality Management District (AQMD), Feather River AQMD, Colusa County APCD, Yolo-Solano AQMD, and Sacramento Metropolitan AQMD. Each air district attains and maintains air quality conditions through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. Strategies include preparing plans for the attainment of ambient air quality standards, adopting and enforcing rules and regulations concerning sources of air pollution, and issuing permits for stationary sources of air pollution.

### Temporary Construction Impacts

As discussed in Section 3.2, “Air Quality and Climate Change,” emissions of pollutants generated during construction are temporary, but can contribute to exceedance of local thresholds. Emissions from site preparation (e.g., clearing and grading), material transport, bank stabilization, erosion control feature installation, vegetation planting, and other miscellaneous activities associated with repair of small erosion sites and similar projects would result in the temporary generation of reactive organic gases (ROG), oxides of nitrogen (NO<sub>x</sub>), PM<sub>10</sub>, and fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less (PM<sub>2.5</sub>). Several air districts in the Phase 1 SERP coverage area have not adopted mass emission thresholds for construction-generated criteria air pollutants and precursors. Instead, some of these air districts require that standard equipment exhaust (i.e., ROG and NO<sub>x</sub>) and fugitive dust control measures (i.e., PM<sub>10</sub> and PM<sub>2.5</sub>) be incorporated into project design and implemented during project construction. However, other air districts have established quantitative thresholds of significance that SERP-generated daily construction emissions were evaluated against. As shown in Table 3.2-6 of Section 3.2 “Air Quality and Climate Change,” daily construction NO<sub>x</sub> emissions associated with SERP’s construction activities would exceed the Butte County AQMD and Feather River AQMD thresholds of significance. Thus, SERP-generated, construction-related emissions of criteria air pollutants and precursors, especially if overlapping with other construction activities of similar projects or other construction projects, would exceed local thresholds of significance. Implementation of the mitigation in Section 3.2, “Air Quality and Climate Change,” would reduce significant impacts to a less-than-significant

level by requiring compliance with local air district recommendations for decreasing emissions of criteria air pollutants and precursors.

Assuming that similar flood risk reduction projects or other similar construction projects would also implement all feasible construction emission control measures consistent with respective air district guidelines, construction emissions on some of the related projects may be less than significant, although it is likely that larger projects would result in significant and unavoidable air quality impacts on their own. This impact cannot be more precisely determined or quantified because the construction schedules for related projects are not known, and it is also unknown at what sites small erosion repair projects would occur under the SERP. However, taken in total and combined with the nonattainment status of the SVAB for ozone and PM<sub>10</sub>, and other development that would occur in the SVAB, these reasonably foreseeable projects would result in a significant cumulative impact on air quality.

However, as shown in Table 3.2-5 in Section 3.2, the Phase 1 SERP would contribute only nominally to the existing and expected future nonattainment status of the SVAB. Construction at each repair site would require no more than 1–4 weeks of active construction and the maximum acreage disturbed per site would be 0.5 acre or 1,000 linear feet. In addition, the SERP would use barges to transport material to the individual erosion sites whenever feasible. Using barges would further reduce construction-related emissions because it would reduce the amount of individual truck trips required to each site. Therefore, the SERP would not result in a cumulatively considerable incremental contribution to the significant cumulative impact on air quality from emissions of criteria air pollutants and precursors.

### **Long-Term Operational Impacts**

Implementing the SERP would result in a nominal (e.g., less than 1 pound per day [lb/day]) long-term increase in criteria air pollutants and precursors. Maintenance activities would result in area-source emissions from vegetation management equipment such as chainsaws and trimmers. Modeling was based on the assumption that maintenance activities would be conducted 1 week per year per erosion repair site in the Phase 1 SERP coverage area. As shown in Table 3.2-7 in Section 3.2, modeling results indicate that long-term operation of the SERP would result in regional unmitigated emissions of less than 1 lb/day of ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>, which would not exceed any local air district significance thresholds. The impact associated with the project's operational emissions would be less than significant.

Similar flood projects or other construction projects would result in increases in criteria air pollutants and precursors, and their relative level of contribution is generally related to their size. Long-term operational emissions from these related projects, considered in light of the nonattainment status of the air basin, would result in a significant cumulative impact on air quality from emissions of criteria air pollutants and precursors.. However, emissions

associated with SERP erosion repairs would be nominal, and project-generated emissions also would not exceed local thresholds of significance; therefore, the SERP would not result in a cumulatively considerable incremental contribution to a significant cumulative impact on air quality.

### **Toxic Air Contaminants**

Temporary construction activities under the SERP could expose nearby sensitive receptors to toxic air contaminant (TAC) emissions. Construction activities at individual repair sites would result in generation of diesel particulate matter (diesel PM) emissions from exhaust of off-road heavy-duty diesel equipment for site preparation (e.g., excavation, grading, and clearing), materials transport and handling, installation of bank protection materials, and other miscellaneous activities. Heavy-duty construction equipment would not operate in the immediate proximity of any single sensitive receptor for an extended period of time. Because use of off-road heavy-duty equipment would be temporary, in combination with the dispersive properties of diesel PM, and because primary construction activities would not be active for long periods of time within 300 feet of any sensitive receptors, construction-related TAC emissions would not expose sensitive receptors to substantial concentrations of TACs. Mobile sources of TACs are site-specific and would not combine with similar flood risk reduction projects or other construction projects to expose nearby sensitive receptors to cumulatively significant TAC emissions. Therefore, the SERP would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to TACs generated by short-term construction activities.

### **Carbon Monoxide**

Carbon monoxide (CO) concentration is a direct function of vehicle idling time and, thus, traffic flow conditions. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. Under certain specific meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels with respect to local sensitive land uses, such as residential areas, schools, playgrounds, child care facilities, and hospitals. CO emission factors in future years are expected to be lower than current levels because of more stringent vehicle emissions standards and improvements in vehicle emissions technology. Thus, ambient local CO concentrations under cumulative conditions are expected to continue to decline.

According to the transportation analysis prepared for the SERP, operation of the SERP would not reduce the level of service (LOS) at any signalized intersections to an unacceptable level (LOS E or F) during any time of the day or substantially worsen LOS at any signalized intersections. Long-term local emissions of CO from mobile sources during operations and maintenance activities would not exceed local thresholds of significance. Consequently, the SERP would not result in a cumulatively considerable incremental contribution to a significant

cumulative impact related to increases in traffic volumes on the local roadway network relative to CO concentrations.

## **Odor Emissions**

Construction activities at individual repair sites could expose nearby sensitive receptors to objectionable odors related to short-term construction activities. Construction would result in odors from exhaust emissions from on-site diesel equipment and possible temporary standing water. Such emissions would be site-specific and intermittent and would dissipate rapidly from the source. Emissions of odors would be less than significant for the SERP.

Odor intensity weakens with distance, and it is expected that odors from the individual repair sites, when considered along with potential odors that would be generated by similar flood risk reduction projects or other construction projects, would not result in a significant cumulative impact. Therefore, temporary odors related to construction of individual repair sites would not generate objectionable odors affecting a substantial number of people or result in a cumulatively considerable incremental contribution to a significant cumulative impact related to odor emissions.

## **Climate Change and Greenhouse Gas Emissions**

As stated in Section 3.2, “Air Quality and Climate Change,” the California Office of Planning and Research proposed amendments to the CEQA Guidelines, including Appendix G, to address the impacts of greenhouse gas (GHG) emissions, as directed by Senate Bill 97 (2007). CNRA adopted those guidelines on December 30, 2009, and the guidelines became effective March 18, 2010 (CNRA 2010). The amendments include the following additions to Appendix G. An impact related to global climate change is considered significant if the proposed program would:

- ▶ generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- ▶ conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Assembly Bill (AB) 32 demonstrates California’s commitment to reducing its rate of GHG emissions and associated contribution to climate change without limiting population or economic growth within the state. To meet the GHG emissions targets mandated by AB 32, California would need to generate a lower level of GHG emissions in the future than at the present time. For most projects, however, no simple metric is available to determine whether a single project would substantially increase or decrease overall GHG emissions levels or conflict with the goals of AB 32. None of the applicable air districts has adopted or proposed GHG thresholds.

GHG emissions generated by the project would predominantly be in the form of carbon dioxide (CO<sub>2</sub>). While emissions of other GHGs such as methane (CH<sub>4</sub>) and nitrogen dioxide (NO<sub>2</sub>) are important with respect to global climate change, the emission levels of these GHGs for the sources associated with construction activities are relatively small compared with CO<sub>2</sub> emissions, even considering their higher global warming potential (GWP). Therefore, all GHG emissions for construction and operation are reported as CO<sub>2</sub>.

Construction-related GHG emissions associated with activities related to restoration and bank stabilization were calculated using URBEMIS 2007 version 9.2.4. Operational emissions, including direct (e.g., landscaping and maintenance) and indirect (e.g., vehicle trips) emissions were also calculated using URBEMIS 2007 (Rimpo and Associates 2008).

### ***Construction-Generated Greenhouse Gas Emissions***

Construction activities associated with individual erosion repairs would occur in several locations with a maximum daily area disturbed of 0.5 acre or 1,000 linear feet. During this time, construction-related GHG emissions would be associated with engine exhaust from heavy-duty construction equipment, material transport trucks, and worker commute trips.

The modeled worst-case construction-generated emissions of GHGs would be 132.3 total mass CO<sub>2</sub> emissions (in metric tons) (Rimpo and Associates 2008). This number represents the construction emissions modeled for 2011 and does not include the full life cycle of GHG emissions that would occur over the production/transport of materials used during construction of the SERP, solid waste that occurs over the life of the SERP, and the end of life of the materials and processes that indirectly result from the SERP. Estimation of the GHG emissions associated with these processes would be speculative, would require analysis beyond the current state of the art in impact assessment, and may lead to a false or misleading level of precision in reporting of project-related GHG emissions. In addition, the URBEMIS 2007 computer model does not account for CO<sub>2</sub> emissions associated with the production of concrete or other materials used in project construction. URBEMIS also does not estimate GHG emissions other than CO<sub>2</sub>, such as CH<sub>4</sub> and nitrous oxide, because these levels are expected to be nominal in comparison to the estimated CO<sub>2</sub> levels despite their higher GWP. See Appendix C, "Air Quality Modeling Results," for detailed model input, assumptions, and threshold calculations.

While any increase in GHG emissions would add to the quantity of emissions that contribute to global climate change, emissions associated with construction of the SERP would occur over a limited period, and emissions would be reduced to the extent feasible by implementation of mitigation in Section 3.2, "Air Quality and Climate Change."

In May 2012, DWR adopted a Greenhouse Gas Emissions Reduction Plan in an effort to reduce its impact on the environment (DWR 2012). The plan will guide project development

and decision making with respect to energy use and GHG emissions. This plan shows how DWR will make substantial reductions in its GHG emissions in the near-term (present to 2020) and how it will continue to reduce emissions beyond 2020 to achieve long-term (2050) emissions reduction goals. The near-term goal is to reduce emissions by 50 percent below 1990 levels by 2020. The long-term goal is to reduce emissions by 80 percent below 1990 levels by 2050. DWR identified 11 GHG emissions reduction measures to achieve these goals.

DWR would use this plan to streamline the CEQA cumulative impacts to GHG emissions, consistent with CEQA Guidelines section 15183.5. To streamline these impacts, the SERP projects would incorporate relevant reduction measures as identified in the Greenhouse Gas Emissions Reduction Plan. The reduction measures identify replacement of a power station with sources of electricity that involve lower rates of GHG emissions, increasing energy efficiency of equipment, and other measures that would not apply to the proposed program.

However, could apply to the proposed program. CO-1 Construction Best Management Practices (BMPs), would involve implementing practices aimed at minimizing fuel consumption by construction equipment and transportation of materials, among other actions. Appendix D of DWR's Greenhouse Gas Emissions Reduction Plan identifies the construction BMPs, which have some overlap with the requirements of Mitigation Measure 3.2-1 in this EIR. Those that are not already included as a part of Mitigation Measure 3.2-1 are included below as Mitigation 5-1.

CO-2 Improved Statewide Equipment and Fuel Regulations, involves reductions achieved by compliance with current and anticipated air quality regulations. This measure would not be directly imposed by DWR, but would be required as a result of the current regulatory environment as it applies at the time of a project execution.

#### **Mitigation Measure 5-1: Implement Pre-Construction, Final Design, and Construction BMPs.**

Pre-construction and Final Design BMPs are designed to ensure that individual projects are evaluated and their unique characteristics are taken into consideration when determining whether specific equipment, procedures, or material requirements are feasible and efficacious for reducing GHG emissions from a project. In addition to mitigation measures defined in the various sections of this DEIR, the following BMPs will be applied as applicable and appropriate:

- ▶ **BMP 1.** Evaluate project characteristics, including location, project work flow, site locations, and equipment performance requirements, to determine whether specifications for the use of equipment with repowered engines, electric drive trains, or other high-efficiency technologies are appropriate and feasible for the project or specific elements of the project.

- ▶ **BMP 2.** Evaluate the feasibility and efficacy of performing on-site material hauling with trucks equipped with on-road engines.
- ▶ **BMP 3.** Coordinate opportunities to carpool to the construction site.
- ▶ **BMP 4.** Reduce electricity use in temporary construction offices by using high-efficiency lighting and requiring that heating and cooling units be Energy Star compliant. Require that all contractors develop and implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business.
- ▶ **BMP 5.** For deliveries to project sites where the haul distance exceeds 100 miles and a heavy-duty class 7 or class 8 semi-truck or 53-foot or longer box-type trailer is used for hauling, a SmartWay certified truck will be used to the maximum extent feasible.
- ▶ **BMP 6.** Recycle construction debris to reduce construction waste.

Construction BMPs would apply to all construction and maintenance projects that DWR completes or for which DWR issues contracts. All the SERP projects are expected to implement all construction BMPs..

Following completion of individual erosion repairs, all construction emissions would cease. Additionally, the effort to repair small erosion sites before they become larger erosion sites has the benefit of reducing emissions that would result when repairing the larger sites.

In addition, DWR has specified a series of steps to demonstrate consistency with the Greenhouse Gas Emissions Reduction Plan:

1. Identify, quantify, and analyze the GHG emissions from the proposed program and alternatives using a method consistent with that described in DWR internal guidance, "Guidance for Quantifying Greenhouse Gas Emissions and Determining the Significance of their Contribution to Global Climate Change for CEQA Purposes," as such guidance document may be revised.
2. Determine that construction emissions levels would not exceed the Extraordinary Construction Project threshold of 25,000 metric tons of CO<sub>2</sub>e for the entire construction phase of the SERP, nor would they exceed 12,500 metric tons of CO<sub>2</sub>e in any single year of construction.
3. Incorporate into the design or implementation plan for the SERP all project-level GHG emissions reduction measures listed in Section VII or explain why measures that were not incorporated did not apply.



4. Determine that the proposed program does not conflict with DWR's ability to implement any of the specific project GHG Emissions reduction measures listed in Section VII.
5. If implementation of the proposed program would result in additional energy demands on the SWP system of 15 gigawatt hours per year (GWh/yr) or greater, the SERP would get written confirmation from the DWR SWP Power and Risk Office stating that the Renewable Power Procurement Plan would be updated to accommodate the additional load resulting from the proposed program at such time as it ultimately was implemented.

As required under #1, emissions from the proposed program have been quantified and alternatives assessed. Construction emissions would be well below the Extraordinary Construction Project threshold (#2). Applicable reduction measures from the Greenhouse Gas Emissions Reduction Plan have been incorporated (#3). The proposed program would not conflict with DWR's ability to implement any of the reduction measures (#4). The Phase 1 SERP would not result in additional energy demands approaching the threshold included in #5.

Because DWR has prepared a Greenhouse Gas Emissions Reduction Plan that quantifies existing and future emissions, has established an emissions reduction target below which the contribution to GHG emissions impacts would be less than cumulatively considerable, and has identified measures that would collectively achieve the emissions reduction targets, and because the project complies with relevant GHG reduction measures, project-related GHG emissions would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to global climate change. In addition, the summary of projections in the CVFPP PEIR concluded that the net climate change effects of flood protection activities would be beneficial because the GHG emissions from those activities would be more than compensated, most likely by orders of magnitude, by the avoided emissions that would occur from repair of larger erosion sites or reconstruction following a flood.

### ***Operation-Related Greenhouse Gas Emissions***

Operational GHG emissions would be generated by area and mobile sources during the life of the SERP. Area-source GHG emissions would be associated with landscaping and maintenance largely related to vegetation establishment, employee commute trips, and other miscellaneous activities. No increase in GHG emissions would be associated with off-site electricity generation or water use. Mobile-source GHG emissions would be generated by the slight increase in vehicle trips associated with maintenance activities. Operational emissions, including direct (e.g., landscaping and maintenance) and indirect (e.g., vehicle trips) emissions were calculated using URBEMIS 2007 and are summarized in Table 5-3.

**Table 5-3**  
**Summary of Modeled Operational Emissions of Greenhouse Gases <sup>1</sup>**

Source	Annual Mass CO <sub>2</sub> Emissions (metric tons/year)
<b>Operational Emissions of the SERP (Year 2013)</b>	
Area Sources <sup>1</sup>	3.4
Mobile Sources <sup>1</sup>	73.9
Electricity Consumption <sup>2,3</sup>	0.0
Municipal Water Use <sup>2,3</sup>	0.0
<b>Total Operational Emissions<sup>4</sup></b>	<b>77.3</b>
Notes: <sup>1</sup> Direct operational emissions (i.e., area and mobile sources) were modeled using the URBEMIS 2007 computer model, based on the same assumptions and input parameters used to estimate emissions of criteria air pollutant. URBEMIS also does not estimate GHG emissions other than carbon dioxide (CO <sub>2</sub> ), such as methane and nitrous oxide because the emission levels of these pollutants are expected to be nominal in comparison to the estimated CO <sub>2</sub> levels despite their higher global warming potential. <sup>2</sup> No additional substantial electricity consumption is expected. <sup>3</sup> No additional substantial water consumption is expected. <sup>4</sup> Assumes maintenance of up to 15 erosion sites per year. See Appendix C, "Air Quality Modeling Results," for detailed model input, assumptions, and threshold calculations. Source: Modeling conducted by AECOM in 2009	

An increase in carbon sequestration by riparian vegetation at the project sites is anticipated. Because riparian forest sequesters an estimated 53.7 metric tons per acre within 10 years (COLE Development Group 2011), riparian restoration could reduce emissions in the study area during the first decade following completion of construction activities. The amount of carbon sequestered would be dependent on the number of acres allowed to regrow vegetation and the types of vegetation that repopulated the area. Therefore, because the precise restored acreage is unknown, no quantity of sequestered carbon is presented here, but it would take approximately 15 acres of restored vegetation per year to offset the maintenance emissions presented in Table 5-3 below.

The incremental contribution to climate change by the SERP's construction emissions (132 metric tons) and operational activities (77 metric tons/year) would be minimal and mitigation measures would be implemented to reduce emissions to the extent possible.

The SERP would not conflict with the implementation of AB 32 or the DWR Climate Action Plan, Phase 1: Greenhouse Gas Emissions Reduction Plan. Implementation of the SERP would not result in the generation of substantial temporary construction or long-term operational emissions of GHGs. The SERP would comply with relevant GHG reduction

measures, and project-related GHG emissions would not result in a cumulatively considerable incremental contribution to the significant cumulative impact of global climate change.

## **BIOLOGICAL RESOURCES**

Past development in counties within the Phase 1 SERP coverage area, ranging from land conversions for flood management projects to recent development projects, has resulted in substantial conversions of native habitat to other uses. Although future projects would be expected to mitigate impacts on threatened and endangered species and other sensitive biological resources that are provided with regulatory protections, many types of habitats and species do not have regulatory protection and a net loss of native habitat for plants and wildlife, agricultural lands, and open space areas that provide value to biological resources can be expected to continue.

As discussed in Section 3.3, “Biological Resources,” the Phase 1 SERP coverage area generally includes riparian forest, oak woodland, orchard, and riparian scrub communities that provide wildlife with dispersal and migration corridors and habitat for foraging, cover, nesting, and breeding (including shade and cover for fish and other aquatic species). Primary open-water habitats within the Phase 1 SERP coverage area include the active channels of the Sacramento River, Feather River, Cache Creek, Deer Creek, and Sutter Bypass. These waterways provide multiple habitat functions for a diverse assemblage of native and nonnative fish species. All waterways within the Phase 1 SERP coverage area, including the Sacramento and Feather rivers and their tributaries and sloughs, qualify as jurisdictional waters of the United States.

Construction of individual erosion repairs could result in:

- ▶ impacts related to the temporary degradation of habitat for special-status fish, wildlife, and plant species from construction activities;
- ▶ loss of individuals and nests;
- ▶ disruptions to the nesting, spawning, or migration attempts of 20 special-status fish and wildlife species;
- ▶ damage or loss of seven special-status plant species;
- ▶ removal of sensitive vegetation communities, including riparian and marsh habitat;
- ▶ removal of native oak trees; and
- ▶ the temporary loss of USACE jurisdictional habitats (waters of the United States, including wetlands) until planted vegetation becomes established.

The SERP Manual contains mandatory conservation measures to be applied to all individual erosion repair sites, and resource-specific conservation measures to be applied at selected erosion repair sites to minimize impacts on sensitive biological resources; sensitive natural communities; native trees; and special-status fish, wildlife, and plant species. These conservation measures include timing restrictions for in-channel work to avoid impacts on seasonally present fish species; restrictions on vegetation and habitat disturbance; and specific measures for construction equipment operation, staging, material stockpiling and erosion control during construction, hazardous materials, and other mandatory and resource-specific conservation measures (see Appendix B of this DEIR). The SERP is intended to facilitate repair of erosion sites when they are small, which can reduce the chance of greater environmental impacts if the erosion sites are not treated in an expedient manner. In addition to SERP Manual conservation measures, the SERP is part of the 2012 Central Valley Flood Protection Plan (CVFPP), which includes an associated Conservation Framework. Implementation of the SERP Manual conservation measures and the CVFPP Conservation Framework would reduce impacts to native oak trees protected under county or city ordinances and riparian and marsh plant communities to a less-than-significant level. A streambed alteration agreement also would be obtained from the California Department of Fish and Wildlife (CDFW), and all terms and conditions within the agreement would be met. Although no assurances exist that similar flood projects or other construction projects would potentially affect special-status species and sensitive vegetation communities, these projects would require consultation with CDFW, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service to determine appropriate methods for minimizing impacts. The SERP would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to damage or loss of sensitive species, removal of oak trees, or sensitive natural communities.

Compliance with the terms of the regional general permit from USACE; implementation of the SERP Manual size and placement limits described in Section B, "Baseline Assessment Methodology," the mitigation requirements described in Section G, "Mitigation"; and the mandatory conservation measures described in Section I, "Conservation Measures," of the SERP Manual also would ensure that potential adverse effects on waters of the United States and waters of the state would be avoided or minimized. Flood risk reduction projects or other construction projects that would affect USACE jurisdictional habitat also would be required to comply with USACE requirements. Therefore, the SERP would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to the loss of USACE jurisdictional habitats.

With implementation of the measures listed above, the SERP would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to biological resources.

## CULTURAL RESOURCES

The cumulative context for cultural resources is defined as the Phase 1 SERP coverage area. Cultural resources in the Phase 1 SERP coverage area generally consist of prehistoric sites, historic sites, historic structures, and isolated artifacts. During the 19th and 20th centuries, localized urbanization and intensive agricultural use in the region caused destruction or disturbance of numerous prehistoric sites, while many structures now considered to be historic were erected. From the latter half of the 20th century to the present, prehistoric and historic structures have been disturbed and destroyed. During this period, the creation and enforcement of various regulations protecting cultural resources have substantially reduced the rate and intensity of these impacts; however, even with these regulations, cultural resources are still degraded or destroyed as cumulative development in the region proceeds.

As described in Section 3.4, “Cultural Resources,” the Phase 1 SERP coverage area encompasses lands that were inhabited for at least the past 10,000 years by prehistoric Native American populations, and the themes of reclamation and flood risk reduction are significant historical themes. Implementation of the SERP would require native soil disturbance at individual repair sites that could result in alteration or destruction of significant prehistoric or historic resources. Mitigation outlined in Section 3.4 requires complying with the programmatic agreement (PA) developed by USACE and the State Historic Preservation Officer (SHPO), consulting with stakeholders, performing technical studies to identify and evaluate cultural resources, and implementing avoidance or treatment protocols. These measures would substantially reduce the level of impacts on identified cultural resources.

Although it is likely that few if any of the SERP levees would be found to meet significance criteria, for purposes of section 106 consultation and this analysis, DWR in coordination with USACE has assumed that the SRFCP levees are historically significant. SERP does not propose the removal of any levee, the construction of any new levee, the alteration of any levee such that land use patterns would change, nor any changes to any land uses in the vicinity of the program. The waterside small erosion repair sites would not adversely affect these levees, and the historically significant characteristics of the levees would be preserved by implementation of SERP; that is, there would be no change to the characteristics of levees that make them historically significant. Minor alterations to SRFCP levees from small erosion repair projects implemented under SERP would not materially impair the historical significance of the levees; therefore, the SERP would not make a cumulatively considerable incremental contribution to a significant cumulative impact on historic levees.

In addition, previously unidentified cultural resources eligible for listing on the National Register of Historic Places and the California Register of Historical Resources have the potential to be affected by ground-disturbing work at individual repair sites. Mitigation measures in Section 3.4, “Cultural Resources,” require monitoring of ground-disturbing activities. In addition, if

potentially significant cultural resources are uncovered during construction, all ground-disturbing activities must cease until the extent, character, and potential significance of the find is determined and an appropriate treatment protocol is developed in compliance with the PA. These mitigation measures would substantially reduce the level of impacts on unidentified cultural resources.

Consequently, the SERP would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to cultural resources.

## **GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES**

The Phase 1 SERP coverage area is located within the Sacramento Valley, and together with the San Joaquin Valley, makes up the Central Valley geomorphic province of California. The geologic formations and soil types vary depending on the erosion repair location, and therefore are site-specific. None of the individual repair sites would be located within or adjacent to an Alquist-Priolo Earthquake Fault Zone or underlain by or located adjacent to any other known active faults. The Phase 1 SERP coverage area is located in an area of generally low seismic activity and the individual repair sites would not likely experience surface fault rupture or strong seismic ground shaking. The individual repair sites would be located within areas that could be subject to geologic hazards from liquefaction, unstable soils, and shrink-swell potential. However, erosion repairs would be specifically engineered to account for stability factors and safety coefficients, including liquefaction, unstable soils, and shrink-swell potential. On-site soil investigations would be made by a qualified engineer and individual repairs would be designed to appropriately withstand these hazards. In addition, although some of the repair sites may be within areas with high potential for paleontological resources, the projects would only disturb a small area (1.5 to 7.5 acres total per year), and any excavation in native soils would be unlikely to occur. Similar considerations would be expected to occur associated with other flood risk reduction projects. Therefore, the SERP would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to geology, soils, and paleontological resources.

## **HYDROLOGY AND WATER QUALITY**

Local hydrology, drainage, and water quality conditions are often affected by regional activities, in addition to local activities. The Phase 1 SERP coverage area is located in the Sacramento River hydrologic region and includes the entire area drained by the Sacramento River. For planning purposes, this includes all watersheds tributary to the Sacramento River north of the Cosumnes River watershed. The levees within the Phase 1 SERP coverage area from Butte Creek in the north to the Cache Creek north levee in the south are within the Colusa Basin Hydrologic Unit. The Cache Creek south levee, Willow Slough, and Putah Creek are within the Valley Putah-Cache Basin Hydrologic Unit, and the Sacramento River segment to the east is within the Sacramento Delta Hydrologic Unit.

The following evaluation of cumulative hydrology and water quality impacts is determined by examining the extent to which local and regional activities could affect hydrologic conditions in the Phase 1 SERP coverage area. All waterways in the Phase 1 SERP coverage area are tributaries to the Lower Sacramento River reach, which is generally defined as the portion of the river from Princeton (in Colusa County) to the Delta, at Chipps Island. Past and present water supply and agricultural diversions, flood management projects, urban development, and river channelization in the Lower Sacramento River affect hydrology and water quality conditions in the Phase 1 SERP coverage area.

Construction activities associated with small erosion repairs could cause soil erosion and sedimentation of local drainages and waterways. Soil and associated contaminants that enter receiving waters through stormwater runoff and erosion can increase turbidity, stimulate algae growth, increase sedimentation of aquatic habitat, and introduce compounds that are toxic to aquatic organisms. Accidental spills of construction-related substances such as oils, fuels, and levee repair materials could contaminate both surface water and groundwater. As discussed in Section 3.6, "Hydrology and Water Quality," implementation of the SERP Manual conservation measures would reduce the significant, temporary construction-related drainage and water quality effects under the SERP to a less-than-significant level by requiring preparation and implementation of appropriate BMPs to maintain surface water quality conditions in adjacent receiving waters.

No land use changes or additional impervious surfaces would result from implementation of the SERP that could result in contaminant loading of local drainages or receiving waters or changes to the local drainage patterns that could increase watershed flow rates above the natural background level. Impacts associated with long-term water quality effects and increased stormwater runoff activities would be less than significant.

Although there are no assurances that other reasonably foreseeable future projects affecting the Lower Sacramento River reach would incorporate the same measures as the SERP, each project that would affect soil erosion, sedimentation, and discharge stormwater runoff would be required to comply with the existing statewide National Pollutant Discharge Elimination System discharge permits from the Central Valley RWQCB and/or each county's erosion control, flood management, and water quality BMP requirements. Therefore, the SERP, in conjunction with other flood risk reduction projects, would not be expected to result in a cumulatively considerable incremental contribution to a significant cumulative impact related to temporary or long-term hydrology and water quality impacts.

## **NOISE**

The cumulative context for noise is the Phase 1 SERP coverage area, where noise receptors and generators are expected to be affected by the SERP. Noise and vibration are localized

occurrences that attenuate rapidly with distance. Therefore, only future development projects and flood control projects in the immediate vicinity of the repair sites that occur at the same time as noise- and vibration-generating activities would have the potential to add to noise and vibration generated by SERP activities, thus resulting in cumulative noise and vibration impacts. The SERP would result in temporary construction activities that could expose sensitive receptors to noise levels in excess of the applicable noise standards and/or result in a noticeable increase in ambient noise levels. Construction activities at individual repair sites would result in a substantial (i.e., more than 3 decibels) temporary increase in ambient noise levels at nearby noise-sensitive land uses. If construction activities are conducted in jurisdictions that do not apply construction noise exemptions to applicable noise standards, those construction activities could exceed the performance noise standards when construction activities are conducted within 700 feet of noise-sensitive uses. Implementation of mitigation in Section 3.7, "Noise," and compliance with requirements identified in county general plans and codes would limit hours of construction activity to daytime hours, avoiding more noise-sensitive nighttime hours, thus reducing the overall daily noise levels at noise-sensitive receptors. Therefore, potentially significant impacts associated with temporary noise levels from SERP construction would be reduced to a less-than-significant level.

Temporary construction activities under the SERP would increase average daily traffic (ADT) volumes on the local roadway network (i.e., additional haul trucks on the road) and, consequently, would increase noise levels along the affected segments of the levee near erosion repair sites. The SERP would use barges to transport material to the individual erosion sites whenever this method is appropriate and feasible. If individual erosion sites require materials to be transported on the local roadway network, noise-sensitive receptors located near affected roadways would experience increases in traffic noise levels. Noise levels attributable to haul trucks were modeled as shown in Table 3.7-4 using assumptions provided by DWR for typical haul material amounts, truck capacity, and type of project (Tier 1 or 2) (Eckman, pers. comm., 2009).

A quantitative evaluation of increased traffic noise levels along specific routes from haul trucks that would apply to a specific levee segment is not feasible at this time because the individual haul routes for each erosion site have not been identified. In addition, the additive noise contribution from haul-truck trips is expected to contribute nominally to existing levels of traffic noise because it requires a doubling of traffic volume in order to increase traffic noise by 3 dB and the average truck traffic of 14 trips per day would be unlikely to double roadway traffic (Caltrans 1998: N-96). Also, haul trucks would only be operating during daytime hours and/or within the local construction exemption as outlined in Mitigation Measure 3.7-1. Therefore, the SERP would not be expected to result in a cumulatively considerable incremental contribution to a significant cumulative impact related to traffic noise generated by haul trucks.



## **AESTHETICS**

Cumulative impacts on aesthetic resources could occur in the Phase 1 SERP coverage area. The SERP has the potential to adversely affect a scenic vista, scenic highway, or existing visual character. In addition, the SERP has the potential to create glare from construction equipment. However, implementing the SERP would not cause substantial, localized changes to the existing visual character of the Phase 1 SERP coverage area because the size of the repair sites would be small and because revegetation plans for disturbed areas would be part of the design. In addition, the existing levee system would be repaired, reconstructed, or otherwise improved in place. The only scenic highway that could potentially have views of erosion repair sites would be SR 160. However, the repair sites would be small, would be located on the waterside of the levees, and would be similar in character to the existing levees and repair sites. Therefore, implementing the SERP would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to the substantial degradation of scenic vistas, scenic resources, or existing visual character.

All erosion repair work under the SERP is expected to take place during daylight hours; therefore, no lighting would be used. Equipment used during the repairs may create some glare; however, because this would be a temporary effect (on the order of 1–2 weeks) and the amount of equipment needed would be minor, this would not create a substantial source of glare that would affect views of the area. It would be highly unlikely that the SERP would generate glare of sufficient intensity to interact with light and glare generated by other projects in a manner that would result in a significant cumulative impact. Therefore, the SERP would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to new sources of substantial light and glare.

## **HAZARDS AND HAZARDOUS MATERIALS**

The cumulative context for hazards and hazardous materials impacts is defined as the Phase 1 SERP coverage area. However, health and safety impacts associated with past or current uses of a project site usually occur on a project-by-project basis, rather than in a cumulative manner.

Construction of the SERP (like construction of the related projects) would involve the storage, use, disposal, and transport of hazardous materials (e.g., asphalt, fuel, lubricants, solvents) to varying degrees. Storage, use, disposal, and transport of hazardous materials are extensively regulated by various federal, state, and local agencies. Construction companies that would handle any hazardous substances would be required by law to implement and comply with these existing regulations. Therefore, a cumulatively significant impact would not occur, and the SERP would not result in a cumulatively considerable incremental contribution to a cumulatively significant impact associated with hazardous materials storage and transport.

Approximately 18 schools are located within 0.25 mile of levees within the Phase 1 SERP coverage area where construction might occur. Because the hazardous materials used during construction, such as equipment lubricants and diesel fuels, would be present for a short period (no more than 1–2 weeks), would occur in small amounts, and materials transport is regulated by federal, state, and local laws, the potential for a large enough spill to adversely affect nearby schools is considered extremely low. Therefore, the SERP would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to exposure to hazards or hazardous materials near a school.

There are no Cortese-listed sites within the Phase 1 SERP coverage area; however, in some instances, monitoring wells associated with hazardous materials sites could be located near repair sites associated with the SERP. In such circumstances, construction activities in hazardous materials sites or damage to monitoring wells could release hazardous substances into the air and waterways, potentially exposing construction workers, the general public, and the environment to a substantial hazard. Implementation of Mitigation Measure HAZ-1, described in Appendix A, would minimize the potential for exposure of people and the environment to hazardous materials encountered during construction activities. In addition, if hazardous materials were to be encountered on-site during erosion site repairs, the associated impacts would be localized to those repair sites and would not be additive—that is, would not interact on a cumulative basis. Therefore, implementing the SERP would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to exposure to existing hazardous materials.

Because there are several airports or private airstrips within 5,000 feet of the Phase 1 SERP coverage area, there is a possibility that cranes used for construction that are greater than 150 feet in height could interfere with airplane flight paths. Mitigation HAZ-2, discussed in Appendix A, would reduce this impact to a less-than-significant level by requiring engineering plans and specifications to be submitted to airport management for any repairs near an airport or private airstrip and modification of the construction equipment used, if necessary. Other projects that could occur near the same airports as the SERP repairs would also be required to mitigate for potential interference with flight paths. Therefore, it is not expected that a significant cumulative impact related to interference with flight paths would occur, and the SERP would not result in a cumulatively considerable incremental contribution to a significant cumulative impact.

The Phase 1 SERP coverage area is located in local responsibility areas that are either unzoned or present only a moderate fire hazard severity risk. Operating construction equipment in these areas has the potential to spark a wildland fire; however, the risk is considered very low with the use of properly maintained and operated equipment. Small erosion repairs would be located within existing levees and waterways, which are not considered wildlands or urbanized areas. It is not expected that a significant cumulative impact

related to ignition of uncontrolled wildland fires during construction would occur, and the SERP would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to this issue.

## **RECREATION**

The cumulative context for recreation is defined as the Phase 1 SERP coverage area. A number of state and local parks are located adjacent to the rivers throughout the Phase 1 SERP coverage area (e.g., Colusa-Sacramento River State Recreation Area in Colusa County and Discovery Park in the City of Sacramento). Numerous public boat launch facilities, private marinas, recreational vehicle (RV) parks, and resorts are also located within the Phase 1 SERP coverage area along the Sacramento River.

Implementation of the SERP would not result in new development or population increases, and thus would not result in increased use of existing parks or other recreational facilities. However, erosion repair work could potentially cause disruption to recreational uses of nearby facilities and of the river, depending on the location of the repair site. Therefore, during construction of any erosion repairs near recreational facilities, construction signage and closures or detours would be posted. Construction is expected to last approximately 1–2 weeks at any one site, and therefore any disruptions to recreation would be minor and temporary. Related projects could result in similar construction-related recreation impacts. Effects on recreation resources typically are infrequent, short term, and temporary; however, there is no guarantee that some related projects may not have substantially longer construction periods, thus resulting in a more severe impact, and that they would include mitigation measures to avoid conflicts with recreational use during construction. Therefore, some related projects could result in significant impacts. Because the SERP would ensure that construction activities do not substantially affect recreation access, implementing the SERP would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to recreation.

## **TRANSPORTATION AND TRAFFIC**

The cumulative context for transportation and traffic is the Phase 1 SERP coverage area because the majority of impacts from construction-related activities would occur adjacent to each repair site. Regional access to the coverage area would be provided via Interstate 5, SR 99, and SR 160, which run in a north-south direction, and Interstate 80, which runs in an east-west direction. Local access to specific repair sites would be provided via existing roadways and operations and maintenance routes. Adjacent landside areas, maintenance toe roads, and levee crown roads would be used for staging of vehicles, plant materials, and other associated construction equipment.

Construction activities associated with the SERP has the potential to temporarily increase traffic in the areas adjacent to construction zones and over any haul routes. Construction activities would require construction workers to drive to repair sites, and trucks to deliver materials and fill (if needed) and remove debris. As a result, construction could result in substantial (although temporary) increases in traffic on nearby roadways and could exceed a level of service standard for one or more roadways in the coverage area. Mitigation Measure T-1, discussed in Appendix A, would require that a traffic management plan be implemented to minimize interference to local and regional traffic flows from construction activities. This mitigation measure would be sufficient to reduce this impact to a less-than-significant level.

Implementation of repairs would not include design features such as sharp curves or dangerous intersections that would increase hazards, nor would it result in incompatible land uses. However, the use of 30 to 130 large trucks per individual repair to transport equipment and materials to the repair site could affect road conditions on haul routes in the vicinity of the repair site by increasing the rate of road wear and could damage the haul route. Mitigation Measure T-2, discussed in Appendix A, would require that damaged haul routes be restored to pre-project conditions. It is anticipated that similar measures to reduce transportation hazards would be implemented for all related projects. With construction-related transportation safety hazards addressed both on a project-by-project basis and on a broader level by local jurisdictions, a significant cumulative impact is not expected to occur. Therefore, the SERP would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to transportation hazards or traffic.

## **UTILITIES AND SERVICE SYSTEMS**

In terms of cumulative impacts, the utility and service providers within the Phase 1 SERP coverage area are responsible for ensuring that adequate capacity and service systems are provided within their jurisdictional boundaries. Utility and service system infrastructure is located throughout the coverage area and is owned, operated, and maintained by the public and private service providers. Solid waste facilities are operated by private entities and public agencies that contract with counties and cities for receipt of solid waste.

The SERP would not involve new residential, commercial, or industrial development that would result in additional demand for water supplies. Some of the erosion repairs would include plantings as part of the design. However, plantings would be designed to survive without supplemental watering because plantings would be installed along the waterline of the repair site or planting would be delayed until the most appropriate season to avoid the need for watering. Therefore, the SERP would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to water supply.

Construction associated with the SERP would not generate solid waste that would require disposal at a landfill. In addition, any excess materials generated from the repairs (e.g., soil, rock, plant) would be incorporated into the repair site. In addition, all excess materials would be handled in compliance with federal, state, and local laws and regulations related to solid waste. As a result, a significant cumulative impact related to generation and disposal of construction waste would not occur. Implementing the SERP would not result in a cumulatively considerable incremental contribution to a significant cumulative impact related to disposal of construction-generated debris and waste.

## **5.2 GROWTH-INDUCING IMPACTS**

CEQA section 21100(b)(5) specifies that the growth-inducing impacts of a project must be addressed in an EIR. Section 15126.2(d) of the CEQA Guidelines states that a proposed program is growth-inducing if it could “foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment.” For example, direct growth inducement would result if a project involved the construction of new housing, and indirect growth inducement would result if a project established substantial new permanent employment opportunities (e.g., new commercial, industrial, or governmental enterprises), involved a construction effort with substantial short-term employment opportunities that would indirectly stimulate the need for additional housing and services, or removed an obstacle to housing development. Examples of growth-inducing actions include extending water, wastewater, fire, or other types of services in areas not previously served; extending transportation routes into previously undeveloped areas; and establishing major new employment opportunities.

Growth inducement itself is not an environmental effect, but it may foreseeably lead to changes in land use patterns and population densities and related impacts on environmental resources.

The SERP would involve repair of up to 15 small erosion sites annually within the Phase 1 SERP coverage area for the 5 years of Phase 1. Repairs would involve only maintenance of existing structures, and construction activities would be temporary, lasting no more than 1–4 weeks for each site. The repairs would be performed by existing staff members of the DWR maintenance yards. Because of the limited amount of work that would be required and no new jobs would be created, no additional housing would be needed to accommodate workers from outside the area. The SERP efforts would not require any new short- or long-term workers and would not have an effect on the local workforce.

Within the Phase 1 SERP coverage area, population growth and urban development are driven by local, regional, and national economic conditions. Local land use decisions are within the jurisdiction of the six counties and various cities within the Phase 1 SERP coverage area.

Each of these agencies has adopted a general plan consistent with State law. These general plans provide an overall framework for growth and development within the jurisdiction of each agency and consider the level of flood protection provided within those jurisdictions. However, the erosion repairs proposed under the SERP are very small (i.e., 0.5 acre or 1,000 linear feet or less) and would not change the existing designated level of flood protection provided by the existing levees. Erosion repairs would be made to maintain the existing level of flood protection provided by the affected levees. No changes would be made to the designated level of flood protection for any areas protected by Phase 1 levees. Therefore, no additional development would occur as a result of the levee repairs. For these reasons, the SERP would not result in indirect growth-inducing impacts.

The SERP would not include construction of new housing or any other public or private services or utilities. The SERP would restore any haul routes damaged during construction; therefore, this restoration, if needed, would return the affected haul routes to their preconstruction condition. The SERP would not include improvements to access roads or extension of any new transportation routes that would improve access to the Phase 1 SERP coverage area. Therefore, the SERP would not result in direct growth-inducing impacts.

### **5.3 SIGNIFICANT AND UNAVOIDABLE IMPACTS**

CEQA section 21100(b)(2) provides that an EIR shall include a detailed statement setting forth “[i]n a separate section ... [a]ny significant effects on the environment that cannot be avoided if the project is implemented.” As required by the CEQA Guidelines (section 15126.2[b]), an EIR must describe any significant impacts that cannot be avoided, including those that can be mitigated but not reduced to a less-than-significant level. In addition, CEQA Guidelines section 15093(a) allows the decision-making agency to determine whether the benefits of a proposed program outweigh the unavoidable adverse environmental impacts of implementing the project. DWR may approve a project with unavoidable adverse impacts if it prepares a Statement of Overriding Considerations setting forth the specific reasons for making such a judgment.

Incorporation of mitigation and conservation measures would reduce all potentially significant impacts of the SERP to a less-than-significant level. Therefore, no significant unavoidable impacts would occur after mitigation.

### **5.4 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

CEQA requires a discussion of the significant irreversible environmental changes that would be caused by the project should it be implemented (CEQA Guidelines sections 15126.2[c], 15127[a] and 15127[c].) Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that this use could have on future generations.

Irreversible effects result primarily from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., disturbance of a cultural resource).

Several resources, both natural and built, would be expended in the construction and operation of the SERP. Implementation of the Phase 1 SERP would result in the irreversible and irretrievable commitment of energy and material resources during project construction and maintenance, including:

- ▶ construction materials, including such resources as soil and rocks; and
- ▶ energy expended in the form of electricity, gasoline, diesel fuel, and oil for equipment and transportation vehicles that would be needed for project construction, operation, and maintenance.

Because the sites being addressed under the SERP are small (no larger than 0.5 acre or 1,000 feet linear extent), the use of these nonrenewable resources is expected to account for only a small portion of the region's resources and would not affect the availability of these resources for other needs within the region. Construction activities at repair sites would not result in inefficient use of energy or natural resources; rather, the SERP is intended to reduce future use of energy and natural resources by repairing erosion sites before they become large and present a greater danger to public safety and the environment. Construction staff from DWR's maintenance yards would use best available engineering techniques, construction and design practices, and equipment operating procedures. Once repaired, the erosion sites are intended to require little or no additional upkeep or maintenance. Therefore, long-term project operation would not result in substantial long-term consumption of energy and natural resources.

This page intentionally left blank.